



## Lenovo ThinkSystem NE2552E Flex Switch Product Guide

The Lenovo ThinkSystem NE2552E Flex Switch is an embedded switch module for Flex System that is designed for the data center to provide 10 Gb/25 Gb/50 Gb Ethernet server connectivity with 40 Gb/50 Gb/100 Gb Ethernet upstream links. It is an enterprise class Layer 2 and Layer 3 full featured switch that delivers line-rate, high-bandwidth switching, filtering, and traffic queuing without delaying data. Large data center-grade buffers help keep traffic moving, while the numerous high-availability software features help provide high availability for business sensitive traffic.

The NE2552E Flex Switch has 28 internal ports that can be configured as 28x 10 GbE ports, 28x 25 GbE ports, 14x 50 GbE ports, or certain combinations of 10 GbE, 25 GbE, and 50 GbE ports.

For external network connectivity, the NE2552E Flex Switch offers 8x SFP28/SFP+ ports that support 10 GbE SFP+ and 25 GbE SFP28 optical transceivers, active optical cables (AOCs), and direct attach copper (DAC) cables. The switch also offers 4x QSFP28 ports that support 100 GbE QSFP28 or 40 GbE QSFP+ optical transceivers, active optical cables (AOCs), and direct attach copper (DAC) cables. The QSFP28 ports can also be split out into two 50 GbE or four 25 GbE (for 100 GbE QSFP28), or four 10 GbE (for 40 GbE QSFP+) connections by using breakout cables.

The NE2552E Flex Switch is ideal for hyperconverged and cloud solutions, as well as latency-sensitive applications, such as high-performance computing clusters and financial applications.

The NE2552E RackSwitch is shown in the following figure.



Figure 1. Lenovo ThinkSystem NE2552E Flex Switch

### Did you know?

The NE2552E Flex Switch runs Enterprise Networking Operating System (ENOS), which is a data center-class NOS progressively developed over the past decade to deliver highly reliable, high-performance Ethernet and converged switching and interoperability with existing network infrastructures. ENOS has a feature-rich design with virtualization, high availability, and enterprise class Layer 2 and Layer 3 functionality.

The NE2552E is cloud-ready with support for advanced NIC virtualization technologies, such as Unified Fabric Port (UFP). In addition, the switch offers different operational modes (from "easy connect" transparent networking connectivity to Layer 3 functionality) to satisfy diverse customer networking requirements.

With support for Converged Enhanced Ethernet (CEE), the NE2552E can be used as an FCoE transit device and is ideal for network-attached storage (NAS) and iSCSI environments.

## Key features

The ThinkSystem NE2552E Flex Switch is considered particularly suited for the following environments:

- Mixed 10 GbE, 25 GbE, and 50 GbE embedded server connectivity with 40 GbE, 50 GbE, or 100 GbE upstream aggregation
- Cloud and virtualization solutions with integration into Lenovo and third-party IT and cloud infrastructure management tools
- Embedded network connectivity with support for converged SAN and LAN via NAS, iSCSI, or FCoE
  - Reduced I/O cost (CAPEX) with fewer adapters, cables, and transceivers to purchase
  - Reduced complexity (OPEX) with fewer components to manage and lower energy cost
- Web-scale and hyperconverged solutions
- Applications demanding better performance and lower latency

The NE2552E Flex Switch offers the following key features and benefits:

- High performance  
The 10 Gb/25 Gb/50 Gb Ethernet NE2552E Flex Switch with 40 Gb/50 Gb/100 Gb Ethernet uplinks provides a combination of low latency, non-blocking line-rate switching, and ease of management.
- Lower power and better cooling  
The embedded design of the NE2552E Flex Switch helps reduce data center air conditioning costs and power consumption.
- Layer 3 functionality  
The NE2552E Flex Switch includes Layer 3 functionality, which provides security and performance benefits, as inter-VLAN traffic stays within the switch. This switch also provides the full range of Layer 3 protocols from static routes for technologies, such as Open Shortest Path First (OSPF) and Border Gateway Protocol (BGP) for enterprise customers.
- Converged fabric  
The NE2552E Flex Switch supports Converged Enhanced Ethernet (CEE) which helps enable customers to combine storage, messaging traffic, VoIP, video, and other data on a common data center lossless Ethernet infrastructure. As a result, customers can deploy a single server interface for multiple data types, which can simplify the deployment and management of server network connectivity while maintaining the high availability and robustness that is required for storage transactions.
- Fault tolerance  
The NE2552E Flex Switch learns alternate routes automatically and performs faster convergence if there is a link or switch failure.
- Seamless interoperability  
The NE2552E Flex Switch performs seamlessly with other vendors' upstream switches.
- Virtualization  
The NE2552E Flex Switch can help customers address I/O requirements for multiple NICs while reducing cost and complexity. By using Unified Fabric Port, customers can partition a physical NIC into multiple virtual ports (2 - 8 vPorts) and create a virtual pipe between the adapter and the switch for improved performance, availability, and security.

Switch Partition (SPAR) allows clients to virtualize the switch with partitions that isolate communications for multi-tenancy environments.

- **Transparent networking capability**  
With a simple configuration change to "easy connect" mode, the NE2552E Flex Switch becomes a transparent network device that is invisible to the core and eliminates network administration concerns of Spanning Tree Protocol configuration and interoperability and VLAN assignments and avoids any possible loops. By emulating a host NIC to the data center core, it accelerates the provisioning of VMs by eliminating the need to configure the typical access switch parameters.
- **Advanced network management**  
The NE2552E Flex Switch integrates with Lenovo XClarity (planned for 3Q 2018) for centralized data center management. Integration with third-party automation, deployment, and monitoring tools, such as VMware vRealize Orchestrator and Log Insight, Ansible DevOps tools, and OpenStack cloud, provides rapid resource provisioning and simplified configuration management across the network.

## Components and connectors

The front panel of the ThinkSystem NE2552E Flex Switch is shown in the following figure.

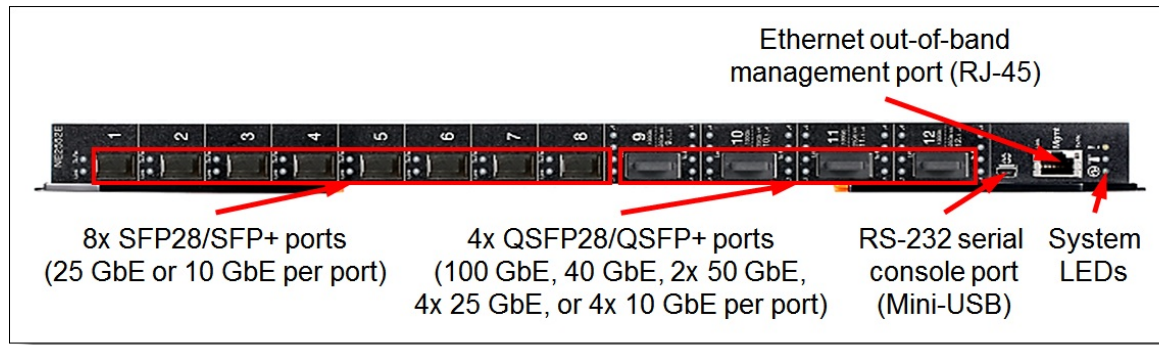


Figure 2. Front panel of the ThinkSystem NE2552E Flex Switch

The front panel includes the following components:

- 8x SFP28/SFP+ ports to attach SFP28/SFP+ transceivers, DAC cables, and AOCs for 25 Gb or 10 Gb Ethernet connections.
- 4x QSFP28/QSFP+ ports to attach QSFP28/QSFP+ transceivers, DAC cables, and AOCs for 100 Gb or 40 Gb Ethernet connections or breakout cables for 2x 50 Gb or 4x 25 Gb Ethernet connections out of a 100 GbE port or 4x 10 GbE connections out of a 40 GbE port.
- 1x RJ-45 10/100/1000 Mb Ethernet port for out-of-band management.
- 1x Mini-USB RS-232 console port that provides another means to configure the switch module.
- System LEDs that display the status of the switch module and the network.

## System specifications

The following table lists the NE2552E system specifications.

**Note:** The supported hardware options and software features listed in this product guide are based on the Lenovo Enterprise Networking Operating System (ENOS) version 8.4.

Table 1. NE2552E system specifications

Attribute	Specification
Form factor	Flex System embedded I/O module
Ports	<ul style="list-style-type: none"> <li>• Internal: 28x 10/25 Gb Ethernet ports or 14x 50 Gb Ethernet ports</li> <li>• External: 8x SFP+/SFP28 ports and 4x QSFP+/QSFP28 ports</li> </ul>

Attribute	Specification
Media types (external ports)	<p>10 Gb Ethernet SFP+:</p> <ul style="list-style-type: none"> <li>• 10 GbE short-range (SR) SFP+ transceivers</li> <li>• 10 GbE long-range (LR) SFP+ transceivers</li> <li>• 10 GbE extended-range (ER) SFP+ transceivers</li> <li>• 10 GbE RJ-45 SFP+ transceivers</li> <li>• 10 GbE SFP+ active optical cables</li> <li>• 10 GbE SFP+ DAC cables</li> </ul> <p>25 Gb Ethernet SFP28:</p> <ul style="list-style-type: none"> <li>• 25 GbE SR SFP+ transceivers</li> <li>• 25 GbE SFP+ active optical cables</li> <li>• 25 GbE SFP+ DAC cables</li> </ul> <p>40 Gb Ethernet QSFP+:</p> <ul style="list-style-type: none"> <li>• 40 GbE SR QSFP+ bi-directional (BiDi) transceivers</li> <li>• 40 GbE short-range (SR4/iSR4/eSR4) QSFP+ transceivers</li> <li>• 40 GbE long-range (LR4) QSFP+ transceivers</li> <li>• 40 GbE QSFP+ to QSFP+ active optical cables</li> <li>• 40 GbE QSFP+ to 4x 10 GbE SFP+ active optical breakout cables</li> <li>• 40 GbE QSFP+ to QSFP+ DAC cables</li> <li>• 40 GbE QSFP+ to 4x 10 GbE SFP+ DAC breakout cables</li> </ul> <p>100 Gb Ethernet QSFP28:</p> <ul style="list-style-type: none"> <li>• 100 GbE short-range (SR4) QSFP28 transceivers</li> <li>• 100 GbE long-range (LR4) QSFP28 transceivers</li> <li>• 100 GbE QSFP28 to QSFP28 active optical cables</li> <li>• 100 GbE QSFP28 to 4x 25 GbE SFP28 active optical breakout cables</li> <li>• 100 GbE QSFP28 to QSFP28 DAC cables</li> <li>• 100 GbE QSFP28 to 4x 25 GbE SFP28 DAC breakout cables</li> <li>• 100 GbE QSFP28 to 2x 50 GbE QSFP28 DAC breakout cables (not supplied by Lenovo)</li> </ul>
Port speeds	<ul style="list-style-type: none"> <li>• Internal ports: 10 Gbps, 25 Gbps, or 50 [2x 25] Gbps</li> <li>• 10 GbE SFP+ transceivers, DAC cables, and AOCs: 10 Gbps</li> <li>• 25 GbE SFP28 transceivers, DAC cables, and AOCs: 25 Gbps</li> <li>• 40 GbE QSFP+ SR BiDi/SR4/LR4 transceivers: 40 Gbps</li> <li>• 40 GbE QSFP+ iSR4/eSR4 transceivers, DAC cables, and AOCs: 40 Gbps or 4x 10 Gbps</li> <li>• 100 GbE QSFP28 DAC cables: 100 Gbps, 2x 50 [2x 25] Gbps, or 4x 25 Gbps</li> <li>• 100 GbE QSFP28 SR4 transceivers and AOCs: 100 Gbps or 4x 25 Gbps</li> <li>• 100 GbE QSFP28 LR4 transceivers: 100 Gbps</li> </ul> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>• Internal ports and external SFP+/SFP28 ports are combined into nine 4-port groups: INTA-INTB: 1-2, 3-4, 5-6, 7-8, 9-10, 11-12, and 13-14; EXT: 1-4 and 5-8. All ports in the same 4-port group operate at the same speed (10 Gbps, 25 Gbps, or 50 [2x 25] Gbps [internal ports only]).</li> <li>• The switch can operate in any combination of up to three of five different port speeds supported (10 Gbps, 25 Gbps, 40 Gbps, 50 Gbps, and 100 Gbps) across all ports on the switch; a combination of four or five different port speeds is not supported.</li> </ul>
Switching method	Cut-through.
Data traffic types	Unicast, multicast, broadcast.

Attribute	Specification
Software features	Lenovo Enterprise Networking OS:  Layer 2 switching, Layer 3 switching, virtual local area networks (VLANs), VLAN tagging, spanning tree protocol (STP), link aggregation (trunk) groups (LAGs), virtual LAGs (vLAGs), Hot Links, Layer 2 failover, quality of service (QoS), Switch Partitioning (SPAR), IPv4/IPv6 management, IPv4/IPv6 routing, IPv4 virtual router redundancy protocol (VRRP), virtual NICs, Unified Fabric Port (UFP), Converged Enhanced Ethernet, Fibre Channel over Ethernet (FCoE) transit switch operations.
Performance	Non-blocking architecture with wire-speed forwarding of traffic: <ul style="list-style-type: none"> <li>● 100% line-rate performance</li> <li>● Up to 2.6 Tbps aggregated throughput</li> <li>● As low as 480 ns (QSFP28) or 529 ns (SFP28) port-to-port switching latency</li> <li>● Up to 1934 Million packets per second (Mpps)</li> <li>● Up to 9216-byte jumbo frames</li> <li>● Buffer size: 22 MB</li> </ul>
Scalability	<ul style="list-style-type: none"> <li>● MAC address forwarding database entries: 103 000</li> <li>● VLANs: 4095</li> <li>● Per VLAN Rapid Spanning Tree (PVRST) instances: 128</li> <li>● Multiple STP (MSTP) instances: 32</li> <li>● Link aggregation groups: 52</li> <li>● Ports in a link aggregation group: 32</li> <li>● Maximum ACL entries (IPv4 / IPv6 / VLAN): 256 / 128 / 128</li> <li>● Static routes (IPv4 / IPv6): 128 / 128</li> <li>● Dynamic routes (IPv4 / IPv6): 2000 / 600</li> </ul>
Hot-swap parts	SFP+/SFP28/QSFP+/QSFP28 transceivers, DAC cables, and AOCs.
Management ports	2x 1 GbE internal ports connected to the chassis management module; 1x 10/100/1000 Mb Ethernet EXTM external port (RJ-45); 1x RS-232 external port (Mini-USB).
Management interfaces	Browser-based Interface (BBI); Industry-standard command line interface (ISCLI); SNMP; NETCONF (XML); Lenovo XClarity Administrator (planned for 3Q 2018); Lenovo Networking Content Pack for VMware vRealize Log Insight; Lenovo Networking Neutron Plugin for OpenStack-based environments; Ansible support for IT automation.
Security features	Secure Shell (SSH); Secure Copy (SCP); Secure FTP (sFTP); user level security; LDAP/LDAPS, RADIUS, and TACACS+ authentication; access control lists (ACLs); port-based network access control (IEEE 802.1x).
Warranty	One-year customer-replaceable unit limited warranty. When installed in a supported chassis, the switch assumes the chassis' base warranty and any warranty service upgrade; warranty includes Networking OS software upgrades.
Mean Time Between Failures	300,000 hours MTBF with ambient operating temperature of 25° C (77° F).
Dimensions	Height: 30 mm (1.2 in.); width: 401 mm (15.8 in.); depth: 317 mm (12.5 in.)
Weight	3.7 kg (8.1 lb).

## Models

The following table lists the ordering information for the NE2552E switch.

Table 2. NE2552E ordering information

Description	Part number	Feature code
Lenovo ThinkSystem NE2552E Flex Switch	4SG7A08868	B2VW

The switch is shipped with the *Electronic Publications Flyer*.

### Notes:

- QSFP28 and SFP+/SFP28 transceivers and cables are not included and should be ordered for the switch (see [Transceivers and cables](#) for details).
- A serial management cable is not included and should be ordered for the switch, if needed. The optional Cable Kit (90Y9338) contains mini-USB-to-RJ-45 and mini-USB-to-DB9 serial cables.

## Transceivers and cables

With the flexibility of the NE2552E Flex Switch, customers can choose the following technologies for external connectivity:

- For 10 GbE links, customers can use SFP28 ports with 10 GbE SFP+ direct-attached copper (DAC) cables for distances up to 7 meters or 10 GbE SFP+ active optical cables (AOCs) for distances up to 20 meters. For distances up to 30 meters, the 10GBASE-T SFP+ transceiver can be used with Category 6a or 7 RJ-45 UTP cables.

For longer distances, the 10GBASE-SR SFP+ transceivers can be used for up to 300 meters with OM3 or up to 400 meters with OM4 multimode fiber optic (MMF) LC-LC cables. The 10GBASE-LR SFP+ transceivers can support distances up to 10 kilometers with single mode fiber optic (SMF) LC-LC cables. For extended distances, the 10GBASE-ER SFP+ transceivers can support up to 40 kilometers with SMF LC-LC cables.

To increase the number of available 10 GbE ports, customers can split out four 10 GbE ports for each QSFP28 port by using QSFP+ to 4x SFP+ DAC or active optical breakout cables for distances up to 5 meters. The 40GBASE-iSR4 QSFP+ transceivers can be used for distances up to 100 meters with OM3 or up to 150 meters with OM4 MMF MPO-4xLC breakout cables. For longer distances, the 40GBASE-eSR4 transceivers can be used for up to 300 meters with OM3 or up to 400 meters with OM4 MMF MPO-4xLC breakout cables.

- For 25 GbE links, customers can use SFP28 ports with 25 GbE SFP28 DAC cables for distances up to 5 meters or 25 GbE SFP28 active optical cables for distances up to 20 meters. For longer distances, the 25GBASE-SR SFP28 transceivers can be used for up to 70 meters with OM3 or up to 100 meters with OM4 MMF LC-LC cables.

To increase the number of available 25 GbE ports, customers can split out four 25 GbE ports for each QSFP28 port by using QSFP28 to 4x SFP28 DAC breakout cables for distances up to 5 meters or active optical breakout cables for distances up to 20 meters. For longer distances, the 100GBASE-SR4 QSFP28 transceivers can be used for up to 70 meters with OM3 or up to 100 meters with OM4 MMF MPO-4xLC breakout cables.

- For 40 GbE links, customers can use QSFP28 ports with QSFP+ to QSFP+ DAC cables for distances up to 7 meters or QSFP+ to QSFP+ active optical cables for distances up to 20 meters.

For longer distances, customers can use the 40GBASE QSFP+ bi-directional transceivers or 40GBASE-SR4/iSR4 QSFP+ transceivers for up to 100 meters with OM3 or up to 150 meters with OM4 MMF MPO-MPO cables. The 40GBASE-eSR4 QSFP+ transceiver can be used for distances up to 300 meters with OM3 or up to 400 meters with OM4 MMF MPO-MPO cables. The 40GBASE-LR4 QSFP+ transceiver can be used for distances up to 10 kilometers with SMF LC-LC cables.

- For 50 GbE links, customers can split out two 50 GbE ports for each QSFP28 port by using the QSFP28-2xQSFP28 DAC breakout cables (not supplied by Lenovo).
- For 100 GbE links, customers can use QSFP28 ports with QSFP28 DAC cables for distances up to 5 meters or QSFP28 active optical cables for distances up to 20 meters.

For longer distances, the 100GBASE-SR4 QSFP28 transceivers support distances up to 70 meters with OM3 or up to 100 meters with OM4 MMF MPO-MPO cables. The 100GBASE-LR4 QSFP28 transceiver can be used for distances up to 10 kilometers with SMF LC-LC cables.

### Notes:

- External SFP+/SFP28 ports are combined into two 4-port groups: EXT1-4 and EXT5-8. All external ports in the same 4-port group operate at the same speed (10 Gbps or 25 Gbps).
- The switch can operate in any combination of up to three of five different port speeds supported (10 Gbps, 25 Gbps, 40 Gbps, 50 Gbps, and 100 Gbps) across all ports on the switch; a combination of four or five different port speeds is not supported.

The following table lists the supported cables and transceivers.

Table 3. Transceivers and cables

Description	Part number	Feature code	Maximum quantity supported
Serial console cables			
Flex System Management Serial Access Cable Kit	90Y9338	A2RR	1
SFP+ transceivers - 10 GbE			
Lenovo Dual Rate 1/10Gb SX/SR SFP+ Transceiver (no 1 Gb support)	00MY034	ATTJ	8
Lenovo 10Gb SFP+ SR Transceiver (10GBASE-SR)	46C3447	5053	8
Lenovo 10Gb SFP+ LR Transceiver (10GBASE-LR)	90Y9412	A1PM	8
Lenovo 10GBASE-LR SFP+ Transceiver	00FE331	B0RJ	8
Lenovo 10Gb SFP+ ER Transceiver (10GBASE-ER)	90Y9415	A1PP	8
Lenovo 10GBASE-T SFP+ Transceiver	7G17A03130	AVV1	8
OM3 optical cables for 10 GbE SR SFP+, 25 GbE SR SFP28, and 40 GbE SR QSFP+ BiDi transceivers			
Lenovo 0.5m LC-LC OM3 MMF Cable	00MN499	ASR5	12
Lenovo 1m LC-LC OM3 MMF Cable	00MN502	ASR6	12
Lenovo 3m LC-LC OM3 MMF Cable	00MN505	ASR7	12
Lenovo 5m LC-LC OM3 MMF Cable	00MN508	ASR8	12
Lenovo 10m LC-LC OM3 MMF Cable	00MN511	ASR9	12
Lenovo 15m LC-LC OM3 MMF Cable	00MN514	ASRA	12
Lenovo 25m LC-LC OM3 MMF Cable	00MN517	ASRB	12
Lenovo 30m LC-LC OM3 MMF Cable	00MN520	ASRC	12
OM4 optical cables for 10 GbE SR SFP+, 25 GbE SR SFP28, and 40 GbE SR QSFP+ BiDi transceivers			
Lenovo 0.5m LC-LC OM4 MMF Cable	4Z57A10845	B2P9	12
Lenovo 1m LC-LC OM4 MMF Cable	4Z57A10846	B2PA	12
Lenovo 3m LC-LC OM4 MMF Cable	4Z57A10847	B2PB	12
Lenovo 5m LC-LC OM4 MMF Cable	4Z57A10848	B2PC	12
Lenovo 10m LC-LC OM4 MMF Cable	4Z57A10849	B2PD	12
Lenovo 15m LC-LC OM4 MMF Cable	4Z57A10850	B2PE	12
Lenovo 25m LC-LC OM4 MMF Cable	4Z57A10851	B2PF	12
Lenovo 30m LC-LC OM4 MMF Cable	4Z57A10852	B2PG	12
SFP+ active optical cables - 10 GbE			
Lenovo 1m SFP+ to SFP+ Active Optical Cable	00YL634	ATYX	8
Lenovo 3m SFP+ to SFP+ Active Optical Cable	00YL637	ATYY	8
Lenovo 5m SFP+ to SFP+ Active Optical Cable	00YL640	ATYZ	8
Lenovo 7m SFP+ to SFP+ Active Optical Cable	00YL643	ATZ0	8
Lenovo 15m SFP+ to SFP+ Active Optical Cable	00YL646	ATZ1	8
Lenovo 20m SFP+ to SFP+ Active Optical Cable	00YL649	ATZ2	8
SFP+ passive direct-attach copper cables - 10 GbE			
Lenovo 0.5m Passive SFP+ DAC Cable	00D6288	A3RG	8
Lenovo 1m Passive SFP+ DAC Cable	90Y9427	A1PH	8



Description	Part number	Feature code	Maximum quantity supported
Lenovo 1.5m Passive SFP+ DAC Cable	00AY764	A51N	8
Lenovo 2m Passive SFP+ DAC Cable	00AY765	A51P	8
Lenovo 3m Passive SFP+ DAC Cable	90Y9430	A1PJ	8
Lenovo 5m Passive SFP+ DAC Cable	90Y9433	A1PK	8
Lenovo 7m Passive SFP+ DAC Cable	00D6151	A3RH	8
<b>SFP28 transceivers - 25 GbE</b>			
Lenovo 25GBASE-SR SFP28 Transceiver	7G17A03537	AV1B	8
<b>SFP28 active optical cables - 25 GbE</b>			
Lenovo 3m 25G SFP28 Active Optical Cable	7Z57A03541	AV1F	8
Lenovo 5m 25G SFP28 Active Optical Cable	7Z57A03542	AV1G	8
Lenovo 10m 25G SFP28 Active Optical Cable	7Z57A03543	AV1H	8
Lenovo 15m 25G SFP28 Active Optical Cable	7Z57A03544	AV1J	8
Lenovo 20m 25G SFP28 Active Optical Cable	7Z57A03545	AV1K	8
<b>SFP28 passive direct-attach copper cables - 25 GbE</b>			
Lenovo 1m Passive 25G SFP28 DAC Cable	7Z57A03557	AV1W	8
Lenovo 3m Passive 25G SFP28 DAC Cable	7Z57A03558	AV1X	8
Lenovo 5m Passive 25G SFP28 DAC Cable	7Z57A03559	AV1Y	8
<b>QSFP+ transceivers - 40 GbE</b>			
Lenovo 40GBASE QSFP+ Bi-Directional Transceiver	00YL631	ATYW	4
Lenovo 40GBASE-SR4 QSFP+ Transceiver	49Y7884	A1DR	4
Lenovo 40GBASE-iSR4 QSFP+ Transceiver	00D9865	ASTM	4
Lenovo 40GBASE-eSR4 QSFP+ Transceiver	00FE325	A5U9	4
Lenovo 40GBASE-LR4 QSFP+ Transceiver	00D6222	A3NY	4
<b>Optical cables for 40 GbE QSFP+ SR4/iSR4/eSR4 transceivers</b>			
Lenovo 10m QSFP+ MPO-MPO OM3 MMF Cable	00VX003	AT2U	4
Lenovo 30m QSFP+ MPO-MPO OM3 MMF Cable	00VX005	AT2V	4
<b>Optical breakout cables for 40 GbE QSFP+ iSR4/eSR4 transceivers</b>			
Lenovo 1m MPO-4xLC OM3 MMF Breakout Cable	00FM412	A5UA	4
Lenovo 3m MPO-4xLC OM3 MMF Breakout Cable	00FM413	A5UB	4
Lenovo 5m MPO-4xLC OM3 MMF Breakout Cable	00FM414	A5UC	4
<b>QSFP+ active optical cables - 40 GbE</b>			
Lenovo 3m QSFP+ to QSFP+ Active Optical Cable	00YL652	ATZ3	4
Lenovo 5m QSFP+ to QSFP+ Active Optical Cable	00YL655	ATZ4	4
Lenovo 7m QSFP+ to QSFP+ Active Optical Cable	00YL658	ATZ5	4
Lenovo 15m QSFP+ to QSFP+ Active Optical Cable	00YL661	ATZ6	4
Lenovo 20m QSFP+ to QSFP+ Active Optical Cable	00YL664	ATZ7	4
<b>QSFP+ active optical breakout cables - 40 GbE to 4x10 GbE</b>			
Lenovo 1m QSFP+ to 4xSFP+ Active Optical Cable	00YL667	ATZ8	4
Lenovo 3m QSFP+ to 4xSFP+ Active Optical Cable	00YL670	ATZ9	4
Lenovo 5m QSFP+ to 4xSFP+ Active Optical Cable	00YL673	ATZA	4

Description	Part number	Feature code	Maximum quantity supported
<b>QSFP+ passive direct-attach copper cables - 40 GbE</b>			
Lenovo 1m Passive QSFP+ DAC Cable	49Y7890	A1DP	4
Lenovo 3m Passive QSFP+ DAC Cable	49Y7891	A1DQ	4
Lenovo 5m Passive QSFP+ DAC Cable	00D5810	A2X8	4
Lenovo 7m Passive QSFP+ DAC Cable	00D5813	A2X9	4
<b>QSFP+ passive copper breakout cables - 40 GbE to 4x 10 GbE</b>			
Lenovo 1m Passive QSFP+ to SFP+ Breakout DAC Cable	49Y7886	A1DL	4
Lenovo 3m Passive QSFP+ to SFP+ Breakout DAC Cable	49Y7887	A1DM	4
Lenovo 5m Passive QSFP+ to SFP+ Breakout DAC Cable	49Y7888	A1DN	4
<b>QSFP28 transceivers - 100 GbE</b>			
Lenovo 100GBASE-SR4 QSFP28 Transceiver	7G17A03539	AV1D	4
Lenovo 100GBASE-LR4 QSFP28 Transceiver	7G17A03540	AV1E	4
<b>Optical cables for 100 GbE QSFP28 SR4 transceivers</b>			
Lenovo 5m MPO-MPO OM4 MMF Cable	7Z57A03567	AV25	4
Lenovo 7m MPO-MPO OM4 MMF Cable	7Z57A03568	AV26	4
Lenovo 10m MPO-MPO OM4 MMF Cable	7Z57A03569	AV27	4
Lenovo 15m MPO-MPO OM4 MMF Cable	7Z57A03570	AV28	4
Lenovo 20m MPO-MPO OM4 MMF Cable	7Z57A03571	AV29	4
Lenovo 30m MPO-MPO OM4 MMF Cable	7Z57A03572	AV2A	4
<b>Optical breakout cables for 100 GbE QSFP28 SR4 transceivers</b>			
Lenovo 1m MPO-4xLC Breakout OM4 MMF Cable	7Z57A03573	AV2B	4
Lenovo 3m MPO-4xLC Breakout OM4 MMF Cable	7Z57A03574	AV2C	4
Lenovo 5m MPO-4xLC Breakout OM4 MMF Cable	7Z57A03575	AV2D	4
<b>QSFP28 active optical cables - 100 GbE</b>			
Lenovo 1m 100G QSFP28 Active Optical Cable	4Z57A10844	B2UZ	4
Lenovo 3m 100G QSFP28 Active Optical Cable	7Z57A03546	AV1L	4
Lenovo 5m 100G QSFP28 Active Optical Cable	7Z57A03547	AV1M	4
Lenovo 10m 100G QSFP28 Active Optical Cable	7Z57A03548	AV1N	4
Lenovo 15m 100G QSFP28 Active Optical Cable	7Z57A03549	AV1P	4
Lenovo 20m 100G QSFP28 Active Optical Cable	7Z57A03550	AV1Q	4
<b>QSFP28 active optical breakout cables - 100 GbE to 4x 25 GbE</b>			
Lenovo 3m 100G to 4x25G Breakout Active Optical Cable	7Z57A03551	AV1R	4
Lenovo 5m 100G to 4x25G Breakout Active Optical Cable	7Z57A03552	AV1S	4
Lenovo 10m 100G to 4x25G Breakout Active Optical Cable	7Z57A03553	AV1T	4
Lenovo 15m 100G to 4x25G Breakout Active Optical Cable	7Z57A03554	AV1U	4
Lenovo 20m 100G to 4x25G Breakout Active Optical Cable	7Z57A03555	AV1V	4
<b>QSFP28 direct attach copper cables - 100 GbE</b>			
Lenovo 1m Passive 100G QSFP28 DAC Cable	7Z57A03561	AV1Z	4
Lenovo 3m Passive 100G QSFP28 DAC Cable	7Z57A03562	AV20	4
Lenovo 5m Passive 100G QSFP28 DAC Cable	7Z57A03563	AV21	4

Description	Part number	Feature code	Maximum quantity supported
QSFP28 direct attach copper breakout cables - 100 GbE			
Lenovo 1m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable	7Z57A03564	AV22	4
Lenovo 3m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable	7Z57A03565	AV23	4
Lenovo 5m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable	7Z57A03566	AV24	4

The network cables that can be used with the switch are listed in the following table.

Table 4. NE2552E Flex Switch network cabling requirements

Transceiver	Standard	Cable	Connector
<b>10 Gb Ethernet</b>			
10Gb SR SFP+ (46C3447) 1/10Gb SFP+ (00MY034)	10GBASE-SR	Up to 30 m with MMF LC-LC cables supplied by Lenovo (see Table 3); up to 300 m with OM3 or up to 400 m with OM4 MMF LC-LC cables	LC
10Gb LR SFP+ (90Y9412, 00FE331)	10GBASE-LR	1310 nm SMF LC-LC cable up to 10 km	LC
10Gb ER SFP+ (90Y9415)	10GBASE-ER	1310 nm SMF LC-LC cable up to 40 km	LC
10Gb RJ-45 SFP+ (7G17A03130)	10GBASE-T	UTP Category 6a or 7 cable up to 30 meters	RJ-45
Active optical cable	10GBASE-SR	SFP+ active optical cables up to 20 m (see Table 3)	SFP+
Direct attach copper cable	10GSFP+Cu	SFP+ DAC cables up to 7 m (see Table 3)	SFP+
<b>25 Gb Ethernet</b>			
25Gb SR SFP28 (7G17A03537)	25GBASE-SR	Up to 30 m with MMF LC-LC cables supplied by Lenovo (see Table 3); up to 70 m with OM3 or up to 100 m with OM4 MMF LC-LC cables	LC
Active optical cable	25GBASE-SR	SFP28 active optical cables up to 20 m (see Table 3)	SFP28
Direct attach copper cable	25GBASE-CR	SFP28 DAC cables up to 5 m (see Table 3)	SFP28
<b>40 Gb Ethernet</b>			
40Gb SR QSFP+ BiDi (00YL631)	40GBASE-SR BiDi	Up to 30 m with MMF LC-LC cables supplied by Lenovo (see Table 3); up to 100 m with OM3 or up to 150 m with OM4 MMF LC-LC cables	LC
40Gb SR4 QSFP+ (49Y7884)	40GBASE-SR4	Up to 30 m with MMF MPO-MPO cables supplied by Lenovo (see Table 3); support for up to 100 m with OM3 or up to 150 m with OM4 MMF MPO-MPO cables	MPO
40Gb iSR4 QSFP+ (00D9865)	40GBASE-SR4	Up to 30 m with MMF MPO-MPO cables or up to 5 m with MPO-4xLC breakout cables supplied by Lenovo (see Table 3); support for up to 100 m with OM3 or up to 150 m with OM4 MMF MPO-MPO or MPO-4xLC breakout cables	MPO

Transceiver	Standard	Cable	Connector
40Gb eSR4 QSFP+ (00FE325)	40GBASE-SR4	Up to 30 m with MMF MPO-MPO cables or up to 5 m with MPO-4xLC breakout cables supplied by Lenovo (see Table 3); support for up to 300 m with OM3 or up to 400 m with OM4 MMF MPO-MPO or MPO-4xLC breakout cables	MPO
40Gb LR4 QSFP+ (00D6222)	40GBASE-LR4	1310 nm SMF LC-LC cable up to 10 km	LC
Active optical cable	40GBASE-SR4	QSFP+ to QSFP+ active optical cables up to 20 m; QSFP+ to 4x SFP+ active optical break-out cables up to 5 m for 4x 10 GbE SFP+ connections out of a 40 GbE port (see Table 3)	QSFP+
Direct attach copper cable	40GBASE-CR4	QSFP+ to QSFP+ DAC cables up to 7 m; QSFP+ to 4x SFP+ DAC break-out cables up to 5 m for 4x 10 GbE SFP+ connections out of a 40 GbE port (see Table 3)	QSFP+
<b>50 Gb (2x 25 Gb) Ethernet</b>			
Direct attach copper cable	25G/50G Eth. Consortium	QSFP28 to 2x QSFP28 DAC breakout cables (not supplied by Lenovo)	QSFP28
<b>100 Gb Ethernet</b>			
100Gb SR4 QSFP28 (7G17A03539)	100GBASE-SR4	Up to 30 m with MPO-MPO MMF cables or up to 5 m with MPO-4xLC breakout cables supplied by Lenovo (see Table 3); up to 70 m with OM3 or up to 100 m with OM4 MMF MPO-MPO or MPO-4xLC breakout cables	MPO
100Gb LR4 QSFP28 (7G17A03540)	100GBASE-LR4	1310 nm SMF LC-LC cable up to 10 km	LC
Active optical cable	100GBASE-SR4	QSFP28 to QSFP28 active optical cables up to 20 m; QSFP28 to 4x SFP28 active optical breakout cables up to 20 m for 4x 25 GbE connections out of a 100 GbE port (see Table 3)	QSFP28
Direct attach copper cable	100GBASE-CR4	QSFP28 to QSFP28 DAC cables up to 5 m; QSFP28 to 4x SFP28 DAC breakout cables up to 5 m for 4x 25 GbE connections out of a 100 GbE port (see Table 3)	QSFP28
<b>Management ports</b>			
1 GbE port	1000BASE-T	UTP Category 5, 5E, and 6 up to 100 meters	RJ-45
Serial port	RS-232	DB-9-to-mini-USB or RJ-45-to-mini-USB console cable (comes with the optional Cable Kit, 90Y9338).	Mini-USB

## Software features

The NE2552E Flex Switch includes the following software features:

- Scalability and performance:
  - Media access control (MAC) address learning with automatic updates
  - Static and LACP (IEEE 802.3ad) link aggregation
  - Broadcast and multicast storm control
  - IGMP snooping to limit flooding of IP multicast traffic
  - IGMP filtering to control multicast traffic for hosts that are participating in multicast groups
  - Configurable traffic distribution schemes over trunk links that are based on source or destination IP or MAC addresses, or both
  - Fast port forwarding and fast uplink convergence for rapid STP convergence
- Availability and redundancy:
  - IEEE 802.1D STP for providing Layer 2 redundancy
  - IEEE 802.1s Multiple STP (MSTP) for topology optimization
  - IEEE 802.1w Rapid STP (RSTP) provides rapid STP convergence for critical delay-sensitive traffic, such as voice or video
  - Per-VLAN Rapid STP (PVRST) enhancements
  - Layer 2 Failover to support active/standby configurations of NIC teaming on compute nodes
  - Hot Links provides basic link redundancy with fast recovery for network topologies that require Spanning Tree to be turned off
- VLAN support:
  - Up to 4095 VLANs supported per switch, with VLAN numbers 1 - 4095 (4095 is used for management module's connection only)
  - Port-based and protocol-based VLANs
  - 802.1Q VLAN tagging support on all ports
  - Full private VLANs
  - Ingress VLAN tagging support to tunnel packets through a public domain without altering the original 802.1Q tagging information
- Security:
  - VLAN-based, MAC-based, and IP-based access control lists (ACLs)
  - 802.1x port-based authentication
  - Multiple user IDs and passwords
  - User access control
  - RADIUS, TACACS+, and LDAP authentication and authorization
  - Secure I/O Module (SIOM) mode: Only secure communication protocols are allowed
  - NIST SP 800-131A compliance
- Quality of Service (QoS):
  - IEEE 802.1p, IP ToS/DSCP, and ACL-based (MAC/IP source and destination addresses, VLANs) traffic classification and processing
  - Traffic shaping and re-marking based on defined policies
  - 2 or 8 (configurable) Weighted Round Robin (WRR) priority queues per port
  - IPv4/IPv6 ACL metering
  - Control Plane Protection (CPP)
  - Packet drop logging
  - Microburst detection

- IP v4 Layer 3 functions:
  - Host management
  - IP forwarding
  - IP filtering with ACLs
  - Virtual Router Redundancy Protocol (VRRP) for router redundancy
  - Routing protocols: RIP v1, RIP v2, OSPF v2, and BGP
  - DHCP Relay
  - IGMP snooping and IGMP relay
  - Protocol Independent Multicast (PIM) in Sparse Mode (PIM-SM) and Dense Mode (PIM-DM)
- IPv6 Layer 3 functions:
  - IPv6 host management (except default switch management IP address)
  - IPv6 forwarding
  - IPv6 filtering with ACLs
  - OSPF v3 routing protocol
- Virtualization:
  - Virtual NICs (vNICs): Ethernet, iSCSI, or FCoE traffic is supported on vNICs (adapter-specific)
  - Unified fabric port (UFP):
    - Up to eight UFP virtual ports (vPorts) per physical port (adapter-specific)
    - Ethernet, iSCSI, or FCoE traffic is supported on vPorts
    - Supports up to 1024 VLAN for the virtual ports
    - Integration with Layer 2 failover
  - Virtual link aggregation groups (vLAGs)
    - Two switches (vLAG peers) act as a single virtual entity for a multi-port aggregation
    - vLAG Peer Gateway for improved usage of the link between the vLAG peers
    - Two-tier vLAGs with VRRP enables active/active VRRP to reduce routing latency
  - Switch partitioning (SPAR):
    - SPAR forms separate virtual switching contexts by segmenting the data plane of the module. Data plane traffic is not shared between SPARs on the same switch.
    - SPAR operates as a Layer 2 broadcast network. Hosts on the same VLAN that are attached to a SPAR can communicate with each other and with the upstream switch. Hosts on the same VLAN but attached to different SPARs communicate through the upstream switch.
    - SPAR is implemented as a dedicated VLAN with a set of internal compute node ports and a single external port or link aggregation (LAG). Multiple external ports or LAGs are not allowed in SPAR. A port can be a member of only one SPAR.
    - SPAR operates in one of the following modes:
      - Pass-through Domain (or VLAN-agnostic) mode  
In VLAN-agnostic mode (default configuration), the NE2552E transparently forwards VLAN tagged frames without filtering on the customer VLAN tag. This mode provides an end host view to the upstream network. When FCoE is used, the switch can be connected to the FCoE transit switch or FCoE gateway (FC Forwarder [FCF]) device.
      - Local Domain (or VLAN-aware) mode  
In VLAN-aware mode (optional configuration), the NE2552E provides more security for multi-tenant environments by extending client VLAN traffic isolation to the switch module and its external ports. VLAN-based access control lists (ACLs) can be configured on the NE2552E. When FCoE is used, the switch operates as an FCoE transit switch and it should be connected to the FCF device.

- Converged Enhanced Ethernet:
  - Priority-Based Flow Control (PFC) (IEEE 802.1Qbb) extends 802.3x standard flow control to allow the switch to pause traffic that is based on the 802.1p priority value in each packet's VLAN tag.
  - Enhanced Transmission Selection (ETS) (IEEE 802.1Qaz) provides a method for allocating link bandwidth that is based on the 802.1p priority value in each packet's VLAN tag.
  - Data Center Bridging Capability Exchange Protocol (DCBX) (IEEE 802.1AB) allows neighboring network devices to exchange information about their capabilities.
- Fibre Channel over Ethernet (FCoE):
  - FC-BB5 FCoE specification compliant
  - FCoE transit switch operations
  - FCoE Initialization Protocol (FIP) support for automatic ACL configuration
  - FCoE Link Aggregation Group (LAG) support
  - Multi-hop RDMA over Converged Ethernet (RoCE) with LAG support
  - Up to 2000 secure FCoE sessions with FIP Snooping by using Class ID ACLs
- Manageability:
  - Industry-standard command line interface (ISCLI)
    - Serial interface
    - Telnet
    - Secure Shell (SSH)
  - Browser-Based Interface (BBI)
    - HTTP
    - HTTPS
  - Scriptable CLI
  - Link Layer Discovery Protocol (LLDP) for discovering network devices
  - Simple Network Management Protocol (SNMP V1, V2, and V3)
  - Service Location Protocol (SLP) for dynamic directory services
  - Secure Copy (SCP) for uploading and downloading the configuration file via secure channels
  - Firmware image update and configuration file transfer via TFTP, FTP, and Secure FTP (sFTP)
  - NETCONF (XML)
  - Network Time Protocol (NTP) and Precision Time Protocol (PTP) for switch clock synchronization
  - EasyConnect (EZC) Wizard
  - Lenovo XClarity (planned for 3Q 2018) for discovery, inventory, monitoring and events
  - Third-party tools integration
    - Lenovo Networking Content Pack for VMware vRealize Log Insight (optional download) for automated log management
    - Lenovo Networking Neutron Plugin to automate VLAN provisioning and configuration updates for OpenStack-based cloud environments
    - Integration with Ansible management
- Monitoring:
  - Switch LEDs for external port status and switch module status indication
  - Remote Monitoring (RMON) agent to collect statistics and proactively monitor performance
  - Port mirroring for analyzing network traffic that is passing through switch
  - Change tracking and remote logging with syslog feature
  - sFLOW agent for monitoring traffic in data networks (separate sFLOW analyzer required elsewhere)
  - POST diagnostics

The following features are not supported with IPv6:

- Default switch management IP address
- SNMP trap host destination IP address
- Bootstrap Protocol (BOOTP) and DHCP
- RADIUS, TACACS+ and LDAP
- QoS metering and re-marking ACLs for out-profile traffic
- Routing Information Protocol (RIP)
- Internet Group Management Protocol (IGMP)
- Border Gateway Protocol (BGP)
- Virtual Router Redundancy Protocol (VRRP)
- sFLOW

## Ethernet standards

The NE2552E switch module supports the following standards:

- IEEE 802.1AB Data Center Bridging Capability Exchange Protocol (DCBX)
- IEEE 802.1D Spanning Tree Protocol (STP)
- IEEE 802.1p Class of Service (CoS) prioritization
- IEEE 802.1s Multiple STP (MSTP)
- IEEE 802.1Q Tagged VLAN (frame tagging on all ports when VLANs are enabled)
- IEEE 802.1Qbb Priority-Based Flow Control (PFC)
- IEEE 802.1Qaz Enhanced Transmission Selection (ETS)
- IEEE 802.1x port-based authentication
- IEEE 802.1w Rapid STP (RSTP)
- IEEE 802.3x Full-duplex Flow Control
- IEEE 802.3ad Link Aggregation Control Protocol
- IEEE 802.3 10BASE-T Ethernet (External Ethernet management port only)
- IEEE 802.3u 100BASE-TX Fast Ethernet (External Ethernet management port only)
- IEEE 802.3ab 1000BASE-T copper twisted pair Gigabit Ethernet (External Ethernet management port only)
- IEEE 802.3ae 10GBASE-KR backplane 10 Gb Ethernet
- IEEE 802.3ae 10GBASE-SR short range fiber optics 10 Gb Ethernet
- IEEE 802.3ae 10GBASE-LR long range fiber optics 10 Gb Ethernet
- IEEE 802.3ae 10GBASE-ER extended range fiber optics 10 Gb Ethernet
- IEEE 802.3an 10GBASE-T copper twisted pair 10 Gb Ethernet
- 10GSFP+Cu 10 Gb SFP+ Direct attach copper cable
- IEEE 802.3by 25GBASE-KR backplane 25 Gb Ethernet
- IEEE 802.3by 25GBASE-CR copper 25 Gb Ethernet
- IEEE 802.3by 25GBASE-SR short range fiber optics 25 Gb Ethernet
- IEEE 802.3ba 40GBASE-CR4 copper 40 Gb Ethernet
- IEEE 802.3ba 40GBASE-SR4 short range fiber optics 40 Gb Ethernet
- IEEE 802.3ba 40GBASE-LR4 long range fiber optics 40 Gb Ethernet
- IEEE 802.3bj 100GBASE-CR4 copper 100 Gb Ethernet
- IEEE 802.3bm 100GBASE-SR4 short range fiber optics 100 Gb Ethernet
- IEEE 802.3ba 100GBASE-LR4 long range fiber optics 100 Gb Ethernet
- 25G 50G Ethernet Consortium



## Warranty

The NE2552E carries a 1-year, customer-replaceable unit (CRU) limited warranty, which includes unrestricted access to software upgrades. When installed in a supported chassis, these I/O modules assume your Flex System chassis' base warranty and any warranty service upgrade.

## Physical specifications

The NE2552E Flex Switch features the following approximate dimensions and weight:

- Height: 30 mm (1.2 in.)
- Width: 401 mm (15.8 in.)
- Depth: 317 mm (12.5 in.)
- Weight: 3.7 kg (8.1 lb)

## Regulatory compliance

The NE2552E Flex Switch conforms to the following regulations:

- United States FCC Part 15, Class A
- Canada ICES-003, Class A
- Australia and New Zealand Class A Statement
- European Union Council Directive 2004/108/EC
- European Union Council Directive 2014/30/EU
- EN55022 Class A
- EN55024
- Japan VCCI Class A Statement
- Korea KCC Class A Statement
- Russia Electromagnetic Interference (EMI) Class A Statement
- People's Republic of China Class A Electronic Emission Statement
- Taiwan Class A Compliance Statement

## Chassis and adapters

The switches are installed in I/O module bays in the rear of the Flex System Chassis, as shown in the following figure. Switches are normally installed in pairs because ports on the I/O adapters that are installed in the compute nodes are routed to two I/O bays for redundancy and performance.

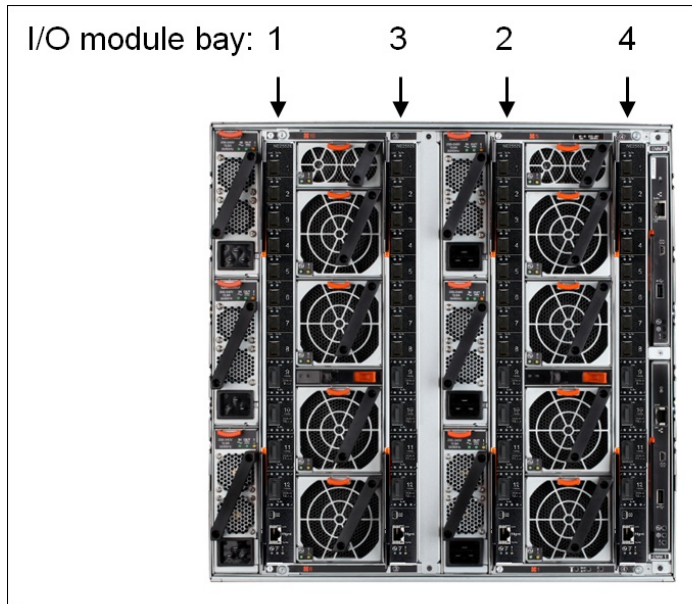


Figure 3. Location of the I/O bays in the Flex System Enterprise Chassis

The NE2552E switches can be installed in bays 1, 2, 3, and 4 of the Enterprise chassis. A supported 10 GbE, 25 GbE, or 50 GbE adapter must be installed in the corresponding slot of the compute node. Each adapter can use one (10/25 GbE) or two (50 GbE) lanes to connect to the respective I/O module bay.

In compute nodes that have an integrated dual-port 10 GbE network interface controller (NIC), NIC ports are routed to bays 1 and 2 with a specialized Fabric Connector, and the adapter is not required. However, the Fabric Connector can be replaced with the adapter when needed. In such a case, the integrated NIC is disabled.

Internal ports on the NE2552E switch are combined into seven 4-port groups:

- INTA1, INTB1, INTA2, INTB2
- INTA3, INTB3, INTA4, INTB4
- INTA5, INTB5, INTA6, INTB6
- INTA7, INTB7, INTA8, INTB8
- INTA9, INTB9, INTA10, INTB10
- INTA11, INTB11, INTA12, INTB12
- INTA13, INTB13, INTA14, INTB14

All internal ports in the same 4-port group operate at the same speed (10 Gbps, 25 Gbps, or 50 Gbps [2x 25 Gbps]). For 50 Gbps internal connections, two 25 Gbps ports (INTAx and INTBx) are combined into a single 50 Gbps (2x 25 Gbps) port (INTAx).

**Note:** The switch can operate in any combination of up to three of five different port speeds supported (10 Gbps, 25 Gbps, 40 Gbps, 50 Gbps, and 100 Gbps) across all ports on the switch; a combination of four or five different port speeds is not supported.

The following figure shows internal port mappings and speeds for various 4-port group configurations.

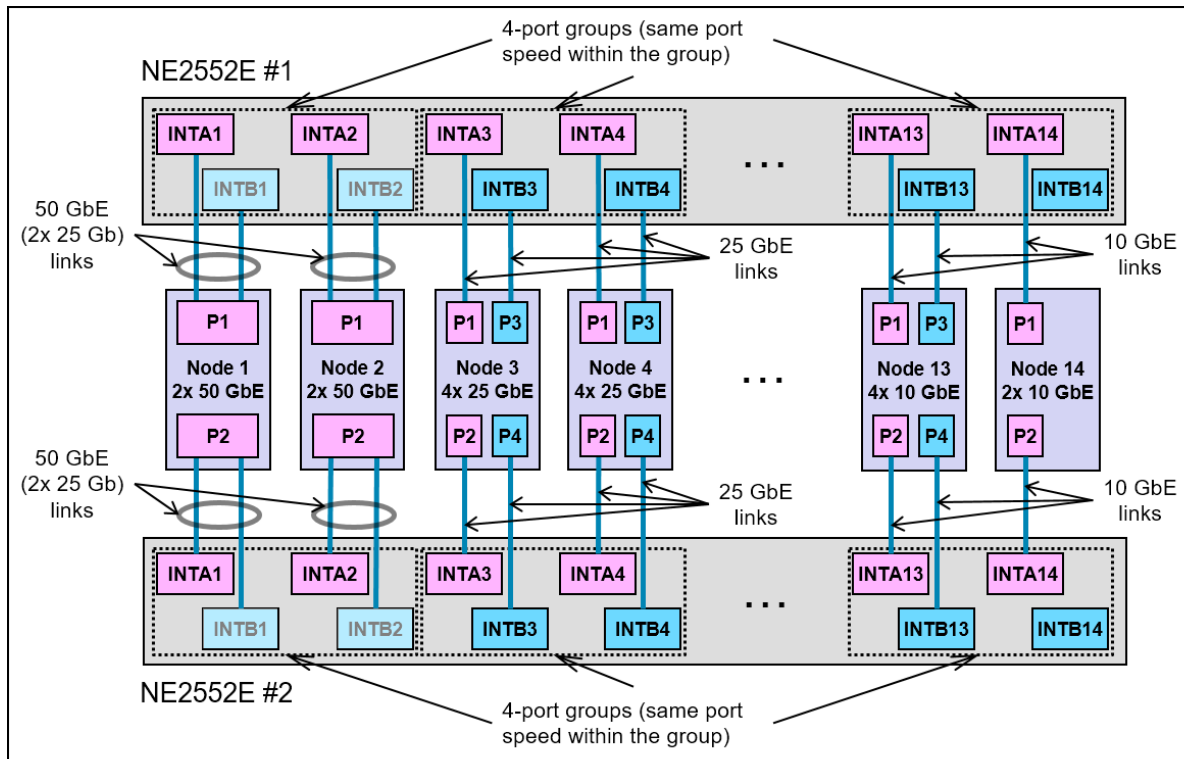


Figure 4. NE2552E internal port mappings

The following table shows compatibility information for the NE2552E and Flex System chassis.

Table 5. Flex System chassis compatibility

Description	Part number	Enterprise Chassis with CMM	Enterprise Chassis with CMM2	Carrier-grade Chassis with CMM2
Lenovo ThinkSystem NE2552E Flex Switch	4SG7A08868	No	Yes	No

The midplane connections between the adapters that are installed in the compute nodes to the I/O module bays in the chassis are listed in the following table. Half-wide compute nodes support up to two adapters, and full-wide compute nodes support up to four adapters.

Table 6. Adapter to I/O bay correspondence

I/O adapter slot in the compute node	Port on the adapter	Corresponding I/O module bay in the chassis			
		Bay 1	Bay 2	Bay 3	Bay 4
Slot 1	Port 1	Yes			
	Port 2		Yes		
	Port 3	Yes			
	Port 4		Yes		
Slot 2	Port 1			Yes	
	Port 2				Yes
	Port 3			Yes	
	Port 4				Yes
Slot 3 (full-wide compute nodes only)	Port 1	Yes			
	Port 2		Yes		
	Port 3	Yes			
	Port 4		Yes		
Slot 4 (full-wide compute nodes only)	Port 1			Yes	
	Port 2				Yes
	Port 3			Yes	
	Port 4				Yes

The currently available I/O adapters that are supported by the NE2552E switch are listed in the following table.

Table 7. Network adapters

Description	Part number	Feature code
<b>10 Gb Ethernet</b>		
Embedded 10 GbE adapter (2-port)*	None	None
Flex System CN4052S 2-port 10Gb Virtual Fabric Adapter	00AG540	ATBT
Flex System CN4052S 2-port 10Gb Virtual Fabric Adapter Advanced	01CV780	AU7X
Flex System CN4054S 4-port 10Gb Virtual Fabric Adapter	00AG590	ATBS
Flex System CN4054S 4-port 10Gb Virtual Fabric Adapter Advanced	01CV790	AU7Y
<b>25 Gb Ethernet</b>		
ThinkSystem QLogic QL45214 Flex 25Gb 4-Port Ethernet Adapter	7XC7A05844	B2VU
<b>50 Gb Ethernet</b>		
ThinkSystem QLogic QL45212 Flex 50Gb 2-Port Ethernet Adapter	7XC7A05843	B2VT
ThinkSystem QLogic QL45262 Flex 50Gb 2-Port Ethernet Adapter with iSCSI/FCoE	7XC7A05845	B2VV

\* The Embedded 10 GbE adapter is built into select compute nodes.

## Network connectivity

The following table lists the network switches that are offered by Lenovo that can be used with the NE2552E switch for network connectivity.

Table 8. Ethernet LAN switches

Description	Part number
10 Gb Ethernet switches	
Lenovo ThinkSystem NE1032 RackSwitch (Rear to Front)	7159A1X
Lenovo ThinkSystem NE1032T RackSwitch (Rear to Front)	7159B1X
Lenovo ThinkSystem NE1072T RackSwitch (Rear to Front)	7159C1X
Lenovo RackSwitch G8124E (Rear to Front)	7159BR6
Lenovo RackSwitch G8264 (Rear to Front)	7159G64
Lenovo RackSwitch G8264CS (Rear to Front)	7159DRX
Lenovo RackSwitch G8272 (Rear to Front)	7159CRW
Lenovo RackSwitch G8296 (Rear to Front)	7159GR6
25 Gb Ethernet switches	
Lenovo ThinkSystem NE2572 RackSwitch (Rear to Front)	7159E1X
40 Gb Ethernet switches	
Lenovo RackSwitch G8332 (Rear to Front)	7159BRX
100 Gb Ethernet switches	
Lenovo ThinkSystem NE10032 RackSwitch (Rear to Front)	7159D1X

For more information, see the list of Product Guides in the Top-of-rack Switches category:  
<http://lenovopress.com/servers/options/switches#rt=product-guide>

## Storage connectivity

The following table lists the external storage systems that are currently offered by Lenovo that can be used with the NE2552E for external NAS or iSCSI SAN storage connectivity.

Table 9. External storage systems

Description	Part number
Lenovo ThinkSystem DS Series Storage (iSCSI host connectivity)	
Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit (US English documentation)	4599A31*
Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4599A3C^
Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit (Japanese documentation)	4599A3J**
Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit (US English documentation)	4599A11*
Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4599A1C^
Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit (Japanese documentation)	4599A1J**
Lenovo ThinkSystem DS4200 LFF FC/iSCSI Dual Controller Unit (US English documentation)	4617A31*
Lenovo ThinkSystem DS4200 LFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4617A3C^
Lenovo ThinkSystem DS4200 LFF FC/iSCSI Dual Controller Unit (Japanese documentation)	4617A3J**

Description	Part number
Lenovo ThinkSystem DS4200 SFF FC/iSCSI Dual Controller Unit (US English documentation)	4617A11*
Lenovo ThinkSystem DS4200 SFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4617A1C^
Lenovo ThinkSystem DS4200 SFF FC/iSCSI Dual Controller Unit (Japanese documentation)	4617A1J**
Lenovo ThinkSystem DS6200 SFF FC/iSCSI Dual Controller Unit (US English documentation)	4619A11*
Lenovo ThinkSystem DS6200 SFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4619A1C^
Lenovo Storage V Series (iSCSI host connectivity)	
Lenovo Storage V3700 V2 LFF Control Enclosure	6535C1D
Lenovo Storage V3700 V2 LFF Control Enclosure (TopSeller)	6535EC1
Lenovo Storage V3700 V2 SFF Control Enclosure	6535C2D
Lenovo Storage V3700 V2 SFF Control Enclosure (TopSeller)	6535EC2
Lenovo Storage V3700 V2 XP LFF Control Enclosure	6535C3D
Lenovo Storage V3700 V2 XP LFF Control Enclosure (TopSeller)	6535EC3
Lenovo Storage V3700 V2 XP SFF Control Enclosure	6535C4D
Lenovo Storage V3700 V2 XP SFF Control Enclosure (TopSeller)	6535EC4
Lenovo Storage V5030 LFF Control Enclosure 3Yr S&S	6536C12
Lenovo Storage V5030 LFF Control Enclosure 5Yr S&S	6536C32
Lenovo Storage V5030 SFF Control Enclosure 3Yr S&S	6536C22
Lenovo Storage V5030 SFF Control Enclosure 5Yr S&S	6536C42
Lenovo Storage V5030F SFF Control Enclosure 3Yr S&S	6536B1F
Lenovo Storage V5030F SFF Control Enclosure 5Yr S&S	6536B2F
IBM Storwize for Lenovo (iSCSI host connectivity)	
IBM Storwize V3500 3.5-inch Dual Control Storage Controller Unit	6096CU2^
IBM Storwize V3500 2.5-inch Dual Control Storage Controller Unit	6096CU3^
IBM Storwize V7000 SFF Control Enclosure, 3YR SWMA	6195C32†
IBM Storwize V7000 SFF Control Enclosure, 3YR SWMA, LA	6195C3L‡
IBM Storwize V7000 SFF Control Enclosure, 5YR SWMA	6195C52†
IBM Storwize V7000 SFF Control Enclosure, 5YR SWMA, LA	6195C5L‡

\* Available worldwide (except China and Japan).

^ Available only in China.

\*\* Available only in Japan.

† Available worldwide except Latin America.

‡ Available only in Latin America.

For more information, see the list of Product Guides in the following categories:

- Lenovo DS Series and V Series storage:  
<http://lenovopress.com/storage/san/lenovo#rt=product-guide>
- IBM Storwize for Lenovo storage:  
<http://lenovopress.com/storage/san/ibm#rt=product-guide>

## Related publications and links

For more information, see the following Lenovo ThinkSystem NE2552E Flex Switch product publications that are available from the Flex System Information Center:

[http://flexsystem.lenovofiles.com/help/topic/com.lenovo.acc.ne2552e.doc/ts\\_ne2552e.html](http://flexsystem.lenovofiles.com/help/topic/com.lenovo.acc.ne2552e.doc/ts_ne2552e.html)

- *ThinkSystem NE2552E Flex Switch Installation Guide*
- *ThinkSystem NE2552E Flex Switch Application Guide*
- *ThinkSystem NE2552E Flex Switch Industry Standard CLI (ISCLI) Command Reference*

For more information about the following management plug-ins for the NE2552E Flex Switch, see Network Management:

<http://www3.lenovo.com/us/en/data-center/networking/networking-software/network-management>

- Lenovo Networking Plug-In for VMware vRealize Orchestrator
- Lenovo Networking Content Pack for VMware vRealize Log Insight
- Lenovo Networking Bundle for VMware vRealize
- Lenovo Networking Plug-In for OpenStack Neutron
- Integration with Ansible

For additional information, see these resources:

- 3D Tour: Lenovo ThinkSystem NE2552E Flex Switch  
<http://lenovopress.com/lp0871>
- *Flex System Products and Technology*, SG24-8255:  
<http://lenovopress.com/sg248255>
- Flex System Interoperability Guide:  
<http://lenovopress.com/fsig>

## Related product families

Product families related to this document are the following:

- [25 Gb Embedded Connectivity](#)
- [Blade Networking Modules](#)

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